

Serial No. 10/669,867  
Atty. Doc. No. 2003P06418US01

Amendments To The Claims:

Please amend the claims as shown. Applicants reserve the right to pursue the canceled claims at a later date.

1. (currently amended) A method of repairing a combustion turbine component having damage located at or near a cooling hole or hollow or geometrically complex portion of the component, comprising:

forming a preparatory groove that extends from a surface of the component to the damaged area but does not extend to the cooling hole or hollow or geometrically complex portion of the component, the groove extending 40-90% the distance from the surface of the component to the a portion of the damaged area that is closest to the cooling hole or geometrically complex portion of the of the component;

spraying a filler material into the groove with a micro-plasma torch at a current of less than 50 amperes ; and

filling the groove with the filler material such that the heated filler material substantially extends from the cooling hole or hollow or geometrically complex portion of the component to a surface of the component.

2. (original) The method of claim 1, wherein the damage is located at a cooling hole.

3. (original) The method of claim 1, wherein the damage is located near an area of spallation.

4. (original) The method of claim 1, wherein the damage is located near a geometrically complex area of the component.

5. (original) The method of claim 1, wherein the damage is a crack.

6. (original) The method of claim 1, wherein the damage is a chip.

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7. (original) The method of claim 1, wherein the damage is caused by oxidation or corrosion.
8. (original) The method of claim 1, wherein the component is a transition duct.
9. (original) The method of claim 1, wherein the preparatory groove extends 60-70% the distance from the component to the damaged area.
10. (original) The method of claim 1, wherein the preparatory groove is formed by hand grinding or machining.
11. (original) The method of claim 1, wherein the filler material is provided in a powder form or a wire feeder form.
12. (original) The method of claim 1, wherein the filler material comprises a yttria stabilized zirconia composition.
13. (original) The method of claim 1, wherein the micro-plasma torch has a nozzle orifice of about 1 – 2 mm which spreads the powder at an angle of about 10 degrees.
14. (original) The method of claim 1, wherein the micro-plasma torch has a heat input of about 2 – 5 kJ/cm.
15. (original) The method of claim 1, wherein the groove is completely filled with the filler material.
16. (original) The method of claim 1, further comprising smoothing the filler material so that it is substantially planar with the component surface.
- 17-20. (canceled)

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21. (new) The method of claim 1, wherein the crack has a width of about 0.01 – 4 mm, a length of greater than 1 mm, and a depth of 0.5 – 10 mm.

22. (new) The method of claim 21, wherein the width of the preparatory groove is substantially constant along the entire length of the groove.

23. (new) A method of repairing a combustion turbine component having damage located at or near a cooling hole, comprising:

forming a preparatory groove that extends from a surface of the component to the damaged area but does not extend to the cooling hole, the groove extending 40-90% the distance from a surface of the component to a portion of the damaged area that is closest to the cooling hole;

placing a filler material into the groove with a spray torch at a current of less than 50 amperes; and

filling the groove with the filler material such that the heated filler material substantially extends from the cooling hole to a surface of the component.

24. (new) The method of claim 23, wherein a width of the preparatory groove is substantially constant along a length of the groove.